

CLAIMS

1. A method of forming an active plate for a liquid crystal display, comprising:

5 depositing and patterning a substantially transparent conductor layer to define an array of pixel electrodes (12) over an insulating substrate arranged in rows and columns;

defining row conductors (30) and connected gate conductor portions (30b) over different areas of the insulating substrate to the pixel electrodes;

10 depositing and patterning thin film transistor layers (66) over the gate conductor portions to form transistor bodies, the thin film transistor layers comprising at least a gate insulator (70) and a semiconductor layer (72);

forming an insulating layer (76) arranged as a plurality of columns, each insulating layer column overlapping the pixel electrodes (12) of two adjacent
15 columns of pixels; and

forming an opaque conductor layer over the substrate and patterning the opaque conductor layer to define column conductors (34) on top of the insulating layer (76) , and source (82) and drain (84) electrodes for the transistor on top of the thin film transistor layers (66), one of which is
20 connected to a column conductor and the other of which is connected to an associated pixel electrode.

2. A method as claimed in claim 1, wherein the thin film transistor layers (66) of each transistor body also overlap an adjacent pixel electrode (12).

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3. A method as claimed in any preceding claim, wherein the insulating layer (76) comprises a polymer.

4. A method as claimed in claim 3, wherein the polymer comprises a
30 photo-acrylic polymer.

5. A method as claimed in claims 1 or 2, wherein defining the array of pixel electrodes (12) and the row conductors (30) is performed with a first, single-mask process.
- 5 6. A method as claimed in claim 5, wherein forming transistor bodies and the insulating layer is performed with a second, single-mask process.
7. A method as claimed in claim 6, wherein forming the column conductors (34) and source and drain electrodes (82,84) is performed with a third, single-mask process.
- 10 8. A method as claimed in claim 7, wherein each single mask process uses a half-tone photo-mask.
- 15 9. An active matrix liquid crystal display device, comprising an active plate and a passive plate with liquid crystal sandwiched between, wherein the active plate comprises:
- an insulating substrate (60);
 - an array of rows and columns of pixel electrodes (12) and an array of row conductors (30), occupying different areas over the over the substrate, the pixel electrodes being substantially transparent and the row conductors (30) having gate conductor portions (30b);
 - thin film transistor layers (66) over the gate conductor portions to define transistor bodies,
 - 25 an insulating layer (76) arranged as a plurality of columns, each insulating layer column overlapping the pixel electrodes (12) of two adjacent columns of pixels;
 - opaque column conductors (34) provided on top of the insulating layer (76); and
 - 30 source and drain electrodes (82,84) for the transistor on top of the thin film transistor layers (66) one of which is connected to a column conductor (34) and the other of which is connected to an associated pixel electrode (12).

10. A device as claimed in claim 9, wherein the thin film transistor layers (66) define, in addition to the transistor bodies, columns which lie beneath the insulating layer.

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11. A device as claimed in claims 9 or 10, wherein the insulating layer (76) comprises a polymer.

12. A device as claimed in claim 11, wherein the polymer comprises a
10 photo-acrylic polymer.